

A REDESCRIPTION OF HAFENFERREFIA
NITIDULA (BANKS) AND NOTES ON THE
DISTRIBUTION OF OTHER SPECIES IN
THE FAMILY TENUIALIDAE
(ACARINA: ORIBATEI)¹

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When Sellnick (1952) described *Hafenrefferiella nevesi*, a new genus and species of oribatid mite from Portugal, he indicated that *Galumna nitidula* Banks, 1906, might belong to this genus. Jacot (1939) had suggested previously that Banks' species was similar to *Hafenrefferia gilvipes* Oudemans, but constituted a new genus, which he called *Hafenferrefia*. He described this new genus and designated *G. nitidula* Banks as type.

During the past year specimens of this genus were collected by the senior author, from Washington and Oregon. The writers compared these specimens with others collected by Dr. Stanley and Dorothea Mulaik, and with the descriptions and drawings of Banks and Jacot. As a result of these comparisons, it appears that these specimens are representatives of *Hafenferrefia nitidula* (Banks, 1906), Jacot, 1939. The following redescription is a composite of the descriptions of Banks (1906) and Jacot (1939) and the personal observations of the writers.

Genus *Hafenferrefia* Jacot, 1939, p. 325.

Type: *Galumna nitidula* Banks, 1906, p. 491.

DIAGNOSIS: Anterior rostral margin entire; lamellae narrow, translamella incomplete, interrupted medially; lamellar hairs inserted in apex of truncate lamellar cusps; pteromorphae short, stout triangles, sclerotized along basal half of medial margin.

Hafenferrefia nitidula (Banks, 1906), Jacot, 1939.

DIAGNOSIS: Pteromorphae triangular, rigid, thickened along basal half of medial edge; lamellae narrow, translamella incomplete; tarsus I with a dorsal setal complex of four setae, one of which may be bent. Differs from *Hafenrefferiella nevesi* Sellnick

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in the entire rostral margin, not notched as in *H. nevesi*, and in the insertions of rostral and lamellar hairs. The rostral hairs insert in short tubercles at the lateral edges of the rostrum; lamellar hairs arise from a small notch in the distal end of each lamella. The lamellar cusps are truncate, not pointed as in *H. nevesi*. The number of hysterosomal setae varies between these species as *H. nitidula* exhibits six pairs, *H. nevesi* more than six pairs.

DESCRIPTION: Color deep reddish-brown. Propodosoma and hysterosoma separated by a well-defined suture; propodosoma about one-third as long as hysterosoma, nearly as broad at base as long. Rostral hairs two-thirds as long as lamellar hairs, inserted half their length posterior to tip of rostrum, arched over end of rostrum. Lamellae long, rather narrow, widest at base of cusp; cusp one-fourth as long as lamella, truncate, with a lateral dens. Lamellar hairs nearly twice as long as rostral hairs, inserted in a notch in anterior tip of truncate lamellar cusp, curved inward. Translamella incomplete, reduced to a short, medial bar at base of cusp (fig. 1). Interlamellar hairs as long as distance from pseudostigmata to translamella, inserted medial to pseudostigmata near anterior margin of hysterosoma, insertions separated about the length of one hair. Pseudostigmata cup-like, situated near notch formed by pteromorphae and anterior margin of hysterosoma. Pseudostigmatic organs recurved outward and backward, clavate and barbed toward tip, distal end pointed.

Hysterosoma broadly oval, arched dorsally, with six pairs of long setae (fig. 1). Pteromorphae triangular, projected forward two-thirds the distance to translamella, sclerotized along medial edge, longer than wide, lateral margin entire, posterior border confluent with margin of hysterosoma.

Camerostome oval in outline; palpi five-jointed, mandibles chelate, ventral setae as in figure 2. Genital opening trapezoidal in outline, between bases of legs IV, three times its length anterior to anal aperture; covers longer than broad, each with a row of six setae, setal insertions closer to medial edge of cover than to lateral; g: 1 in anterior margin of cover, other setae subequally spaced posteriorly. Anal opening about as wide as long, narrowed anteriorly; anal covers with two pair of setae (fig. 2).

Legs moderately long, tarsus tridactyle, middle claw largest. Tarsus I with a dorsal setal complex of four setae, one of which may be bent; tibia I with a long seta near the anterior edge that is nearly as long as tarsus; coxa and trochanter III and IV flattened and with a distinct keel.

Seven specimens from Washington and Oregon have the following minimum, average and maximum body measurements: total length, 714 μ , 735 μ , 780 μ ; hysterosoma 530 μ , 555 μ , 600 μ ; width 561 μ , 581 μ , 600 μ .

DISCUSSION: Specimens of *Hafenferrefia* show a closer morphological relationship to *Hafenrefferiella* than to any other genus in the family. This relationship is expressed in the

similarity of body outline, pteromorphae, lamellae, and in the number of genital and anal setae. Although *Hafenferrefia* lacks the serrate-edged pteromorphae of *Tenuiala*, it exhibits a similarity to this genus in the dorsal setal complex of tarsus I, which is found in *Tenuiala kurti* (Woolley and Higgins, 1955).

In Banks' original description no mention is made of hysterosomal setae. The writers observed that the dark pigmentation of *H. nitidula* makes the fine setae of the hysterosoma difficult to see and may account for the omission of this detail in Banks' description and figure.

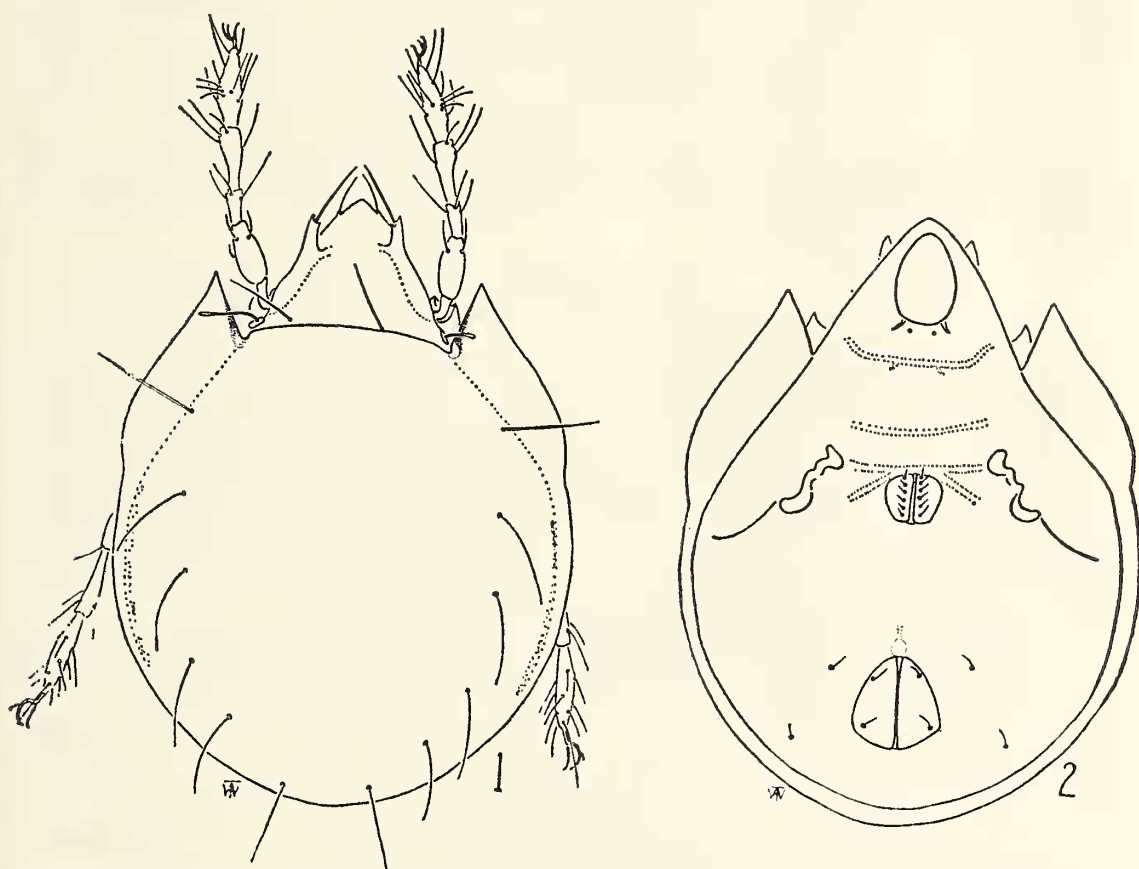


FIG. 1. *Hafenferrefia nitidula* (Banks) from the dorsal aspect.

FIG. 2. *Hafenferrefia nitidula* (Banks) from the ventral aspects, legs omitted.

The habitat of *H. nitidula* appears to be similar to that of other members of this family that have been found in North America. All specimens of *H. nitidula* from Washington and Oregon were found on rotting logs or in decaying leaves in moist, wooded areas.

SPECIMENS EXAMINED: OREGON: three specimens, Cottage Grove, August 24, 1956, H. & M. Higgins; four specimens, Oak-

ridge, June 22, 1952, S. & D. Mulaik. WASHINGTON: two specimens, Neah Bay, August 23, 1956, H. & M. Higgins.

The following collection data are included to amplify the existing records of other species in the family Tenuialidae. Figure 3 indicates known distribution records of species in the western United States and includes collection data cited by Woolley and Higgins (1955).

Tenuiala nuda Ewing, 1913, p. 133

NEW RECORDS: CALIFORNIA: one specimen, Burnt Ranch, Route 299, July 9, 1946, S. Mulaik. UTAH: seven specimens, The Spruces Recreational Area, Salt Lake County, June 8, 1955, H. Higgins; WASHINGTON: two specimen, Mt. Si, July 4, 1956, M. Higgins; one specimen, Sequim Bay State Park, H. & M. Higgins, August 23, 1946; two specimens, Neah Bay, August 23, 1956, H. & M. Higgins.

Tenuiala kurti Woolley & Higgins, 1955, p. 48.

NEW RECORDS: OREGON: one specimen, Cottage Grove, August 24, 1956, H. & M. Higgins. UTAH: one specimen, Oak Creek Canyon, 4 miles E. Oak City, April 17, 1955, H. & M. Higgins; one specimen, Tucker, May 31, 1955, H. Higgins. COLORADO: Middle St. Vrain, Boulder Co., 28 August 1954, T. A. Woolley; Cameron Pass, 13 August 1955, T. A. Woolley.

Variations in the genera *Hafenrefferia*, *Hafenrefferiella*, and *Tenuiala* are delineated by Woolley and Higgins (1955). The genus *Hafenferrefia*, however, is different from any of the above genera and is placed in the key of the above authors as follows:

1. Lamellae narrow, not extending beyond the anterior end of gnathosoma, with or without a translamella; pteromorphs short 3
 Lamella broad and long, extending beyond the anterior end of gnathosoma; with or without a translamella; pteromorphs long Genus
 Tenuiala 2
2. Lamellae broad, unnotched laterally and joined by a translamella
 T. nuda Ewing, 1913.
 Lamellae broad, notched laterally and joined at their antero-medial margins without a translamella *T. kurti* Woolley and Higgins, 1955.
3. With a partial or complete translamella; lamellar hairs inserted in apex of lamellar cusps 4
 Without a translamella; lamellar hairs subapical in insertion on lamellae; pteromorphae slightly sclerotized along proximal half of medial margin *Hafenrefferiella nevesi* Sellnick, 1952.

4. Anterior rostral margin notched; with a complete translamella, pteromorphae heavily sclerotized along entire medial margin
 Hafenrefferia gilvipes (C. L. Koch, 1839) Oudemans, 1906.
Anterior rostral margin entire; usually with a partial translamella;
pteromorphae sclerotized along basal half of medial margin
 Hafenferrefia nitidula (Banks, 1906) Jacot, 1939.

△: *T. nuda*
▲: *T. kurti*
□: *H. nitidula*



FIG. 3. A Distribution Map Showing the Known Locations of *Tenuiala nuda* Ewing, *Tenuiala kurti* Woolley & Higgins, and *Hafenferrefia nitidula* (Banks) in the Western United States.

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